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ABSTRACT

Competence feedback has been found to increase intrinsic motivation, defined as those behaviors that are motivated by the underlying need for competence and self-determination. In a study investigating competency and intrinsic motivation, 120 high school males received three types of competence information: (1) expectancy (information that they would do better than average); (2) an objective norm for standard performance; and (3) feedback. The information concerned performance on a word game. Pretest information was used to classify students according to achievement orientation and initial interest in the puzzles. A process analysis of the effects of the variables on intrinsic motivation showed that anticipated performance and personal importance were affected by the experimental variables, and in turn affected enjoyment. The direct and mediated effects of the information differed by achievement orientation. Importance mediated enjoyment effects for high achievers, while anticipated performance was critical for low achievers. In general, the results suggest that competence information may not always enhance intrinsic motivation, since the identical competence information was perceived differently by high and low achievers. Importance and anticipated performance appear to be important mediators of the effects of competence information on enjoyment. (JAC)

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Competence information and intrinsic motivation: A process approach

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Abstract

One hundred twenty high school males received three types of competence information: expectancy of success, normative standard for performance, and feedback. The information concerned performance on an interesting word game. Two mediators, anticipated performance and personal importance, were affected by the experimental variables, and in turn affected enjoyment. The direct and mediated effects of the information differed by achievement orientation. Importance mediated enjoyment effects for high achievers, while anticipated performance was critical for low achievers. It was concluded that competence information may affect interest very differently according to achievement orientation.

Competence information and intrinsic motivation:

A process approach

The present study was concerned with competency and intrinsic motivation. Intrinsically motivated behaviors have been defined by Deci & Ryan (1980) as those behaviors that are motivated by the underlying need for competence and self-determination. They predict that in general, competence feedback will increase intrinsic motivation. Others (Ryan, 1982; Harackiewicz, 1979) have demonstrated that the informational content of the feedback may not be as important in affecting intrinsic motivation as is the manner in which it is given (i.e., in a controlling vs. informational way). The effects of competence information may also depend on the timing of informational feedback in a behavior sequence. Competence information provided at the outset of an activity may affect intrinsic motivation differently than that provided during the task, or at its conclusion. In addition, individuals may differ in their response to competence cues. Achievement oriented subjects may respond favorably to situations in which competence information is available, whereas individuals low in achievement may be most likely to respond negatively and become anxious in such situations.

In this study, 3 types of competence information were manipulated in an experimental context where subjects worked on interesting word puzzles. In a pretest, subjects had been classified according to achievement orientation

(Jackson, 1974) and initial interest in the puzzles. The objective norms provided in the competence information were set low enough that all subjects were eligible for the positive feedback provided. Two kinds of information were provided prior to task engagement: 1)Expectancy; subjects were informed that their pretest performance indicated that they would do better than average on the puzzles, and 2)Standard; an objective norm for average performance. A third was provided following task completion: 3)Feedback; identical to standard, except in timing of presentation. These three variables were completely crossed.

The experimenter-provided expectancy gives the individual competence information about past performance but does not give objective information with which to judge current performance. The standard provides objective information allowing individuals to evaluate performance during task engagement and so develop feelings of competence, while feedback allows the individual to judge performance only after task completion.

A process analysis (Judd & Kenny, 1981) of the effects of these variables on intrinsic motivation was conducted, and two variables were hypothesized to mediate enjoyment differently according to achievement orientation: anticipated performance level (AP), and the personal valuation of competence, importance of doing well (I). These variables were measured following the expectancy and standard manipulations but prior to task engagement.

RESULTS

For the mediation analysis, the two mediators (I and AP) were each regressed on the independent variables and their interactions. Enjoyment was then regressed on the independent variables and their interactions, the two mediators, and the interactions of the mediators with the independent variables. Pretest interest was included to control for initial interest in the task. Nonsignificant terms were trimmed from the model. In order to interpret significant interaction terms from the regression analysis, predicted values for the various conditions were generated from the regression equations.

Effects on the mediators

High achievers anticipated doing better on the puzzles than low achievers, $F(1,113)=5.04$.

Importance was raised by the Expectancy manipulation for high achievers, but unaffected for low achievers, $F(1,113) = 3.50$.

Direct effects on puzzle enjoyment

The expectancy raised enjoyment for high achievers, and decreased enjoyment for low achievers, $F(1,103) = 13.63$. (See Table 1.)

Feedback decreased enjoyment for low achievers, but did not affect enjoyment for high achievers, $F(1,103) = 5.22$. (See Table 2.)

Mediated effects on puzzle enjoyment

Importance was the critical mediator of enjoyment effects for high achievers, $F(1,103) = 4.07$. For low achievers, Anticipated Performance was critical, $F(1,103) = 7.38$. In other words, high achievers who valued competence and low achievers who expected to do well particularly enjoyed the puzzles.

This differential mediation of Enjoyment depending on Achievement was particularly pronounced in Standard conditions, $F(1,103) = 5.67$ and $F(1,103) = 3.82$. (See Tables 3 and 4.)

The path coefficients for these resulting models were calculated and are shown in the figures. Since many of the significant effects differed by achievement, two path models were drawn: Figure 1 shows the path model for low achievers, while Figure 2 shows the path model for high achievers.

DISCUSSION

Competence information seems to have very different effects for low and high achievers, and these effects are seen at different points in the process of task engagement:

Expectancy of success given before the task increases both Importance and Enjoyment for high achievers. In contrast, it does not affect Importance for low achievers, but reduces their enjoyment.

Feedback supplied after the task reduced the enjoyment of low achievers, but did not affect enjoyment for high

achievers.

Standard of normative performance given before the task had no direct effects on intrinsic interest. Rather, it appears to intensify the mediation of enjoyment by Importance for high achievers, and by Anticipated Performance for low achievers. It seems to establish the context for these differential mediation processes.

Mediation Effects

Anticipated Performance - High achievers feel they are going to do better than do low achievers. Subsequently, anticipated performance mediates differently for low and high achievers, particularly in Standard conditions. For low achievers, the better they think their performance will be, the greater their enjoyment. For high achievers, however, the relationship is smaller and reversed.

Importance - importance appears to be a more critical mediator of enjoyment effects for high achievers than for low. If it is important for high achievers to do well on the puzzles, they experience greater enjoyment. For low achievers, however, this relationship is much weaker. This difference is seen most clearly in Standard conditions.

CONCLUSION

Providing competence information adversely affects low achievers' intrinsic interest in the puzzles. This may be due to uncertainty about performance, since low achievers

anticipate lower performance levels than high achievers. When provided with cues that make salient the issue of performance quality, concern may increase and interfere with enjoyment. This can be seen in the positive relationship between anticipated performance and enjoyment, especially in standard conditions. If low achievers think they are going to do well, giving them objective competence information that allows confirmation of this leads to greater enjoyment. If objective information is not provided, their uncertainty about performance quality will not be reduced until task completion. The negative effects of Expectancy and Feedback for low achievers may be attributed to debilitating uncertainty about performance quality during task engagement.

Competence information has opposite effects for high achievers, who have higher expectations for performance level. For them, the Expectancy increases both the importance of doing well and Enjoyment. Because they are relatively certain about performance level, they are able to benefit from the information provided by the expectancy. A more critical mediator of enjoyment effects for high achievers is whether they value the available competence information. If competence at this particular task is important to them, the Expectancy and Standard will be particularly effective in enhancing enjoyment.

In general, the results suggest that competence information may not always enhance intrinsic motivation. The identical competence information was perceived differently by high and low achievers. Low achievers, forced to think about performance quality, see the competence information in a more negative light. High achievers react favorably to the information, especially if it is valued. Importance and anticipated performance appear to be important mediators of the effects of competence information on enjoyment.

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Table 1

Expectancy for Success x Achievement:
Predicted Values for Enjoyment

Achievement Level	No Expectancy	Expectancy
Low	32.16	29.05
High	29.18	31.87

Table 2

Feedback x Achievement:
Predicted Values for Enjoyment

Achievement Level	No Feedback	Feedback
Low	32.07	29.14
High	30.25	30.80

Table 3

Standard x Achievement x Importance:
Predicted Values for Enjoyment

Low Achievement Level:

Importance Group	No Standard	Standard
Low	30.28	31.52
High	31.37	29.25

High Achievement Level:

Importance Group	No Standard	Standard
Low	30.21	28.09
High	30.79	33.02

Table 4

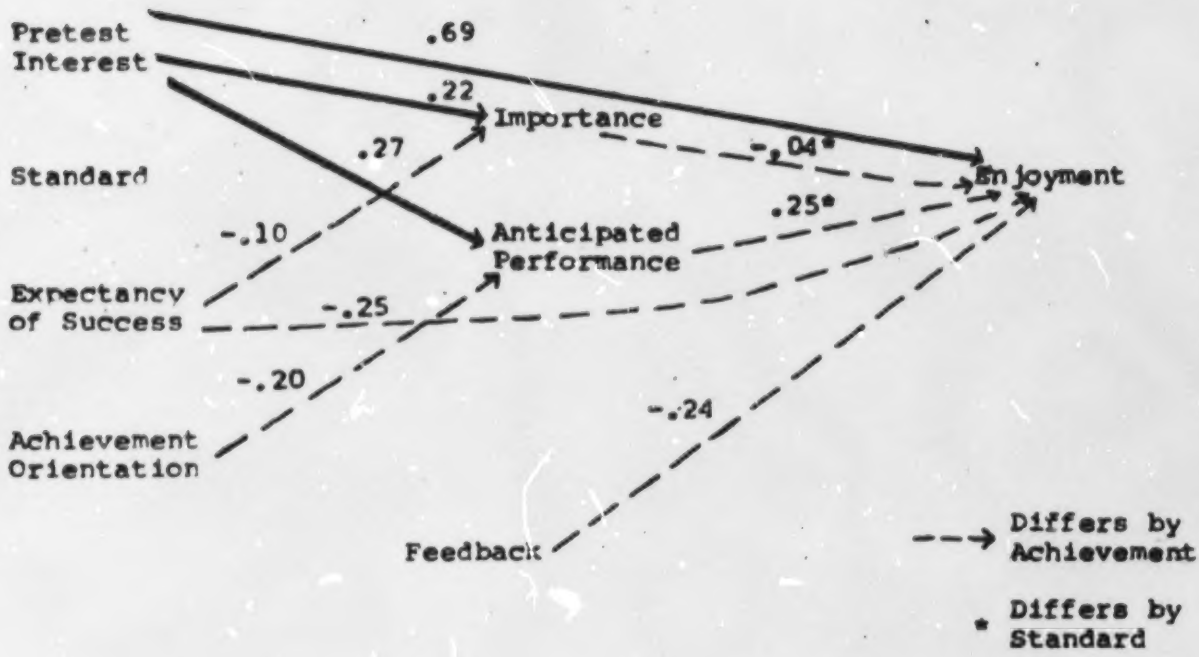
Standard x Achievement x AP:
Predicted Values for Enjoyment

Low Achievement Level:

AP Group	No Standard	Standard
Low	30.04	28.06
High	31.61	32.71

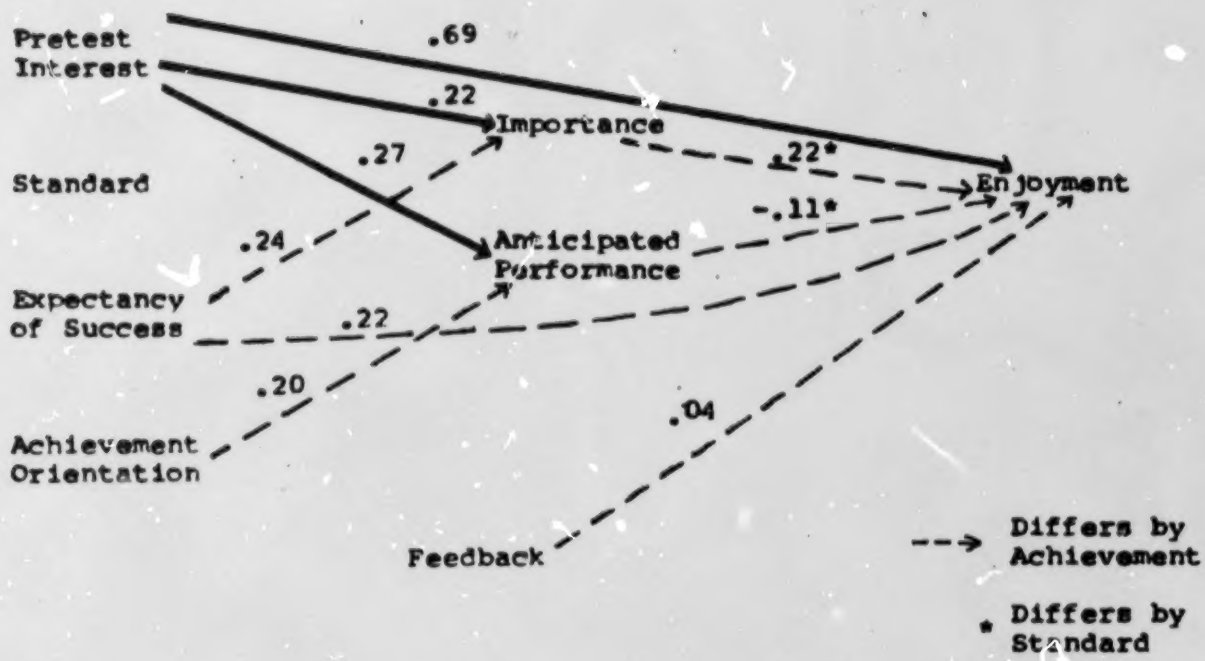
High Achievement Level:

AP Group	No Standard	Standard
Low	30.35	32.00
High	30.65	29.10



Paths to Enjoyment from:	Antic. Perf.	Impt.
No Standard	.13	.09
Standard	.38	-.18

Figure 1. Path mediation model for subjects with low achievement orientation.



Paths to Enjoyment from:	Antic. Perf.	Impt.
No Standard	.02	.05
Standard	-.24	.40

Figure 2. Path mediation model for subjects with high achievement orientation.